

scsiUp™ for CompactPCI

Installation and User's Guide



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CompactPCI®



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1 Introduction

Welcome to the *scsiUp™ for CompactPCI Installation and User's Guide*. This guide contains information about the installation and use of the Continuous Computing SCSI card for CompactPCI.

This guide includes the following information related to scsiUp:

- Unpacking, installing, and starting up
- Troubleshooting and servicing
- Connector usage and specifications

Description

scsiUp is a 32-bit 6U CompactPCI card that enables communication between a Solaris host and up to fifteen external ultra-wide SCSI devices.

Features of scsiUp include:

- **Solaris Compatibility**
scsiUp requires no additional drivers and is fully supported by Solaris. OpenBoot support makes the interface bootable and supports CD-ROM installations.
- **Rear I/O**
Rear I/O allows for clean system cabling and provides for easy card replacement. J3 is used to pass the SCSI bus from front to rear; J4 is provided for physical alignment only; J5 is not required. See [Figure 5](#) for an illustration.
- **High Speed**
Ultra Wide SCSI-2 provides for 40 MB/s of data transfer.

scsiUp is a Basic Hot Swap device, designed in accordance with PICMG 2.1 R1.0. The power circuitry is controlled so that no electrical damage can be incurred upon inserting into or extracting from a live system. However, the operating system must be halted before servicing or it will crash.

Using This Guide

This guide is written for computer technicians and hardware and software engineers.

It is assumed that the user of scsiUp is:

- Familiar with the handling of ESD-sensitive electronic equipment
- Familiar with the Solaris operating system

Typographic Conventions

A summary of the typographic conventions used in this guide is listed in [Table 1](#).

Typeface/Symbol	Meaning	Example
AaBbCc123	The names of commands, files and directories; on-screen computer output	Edit your <code>.login</code> file. At the ok prompt....
AaBbCc123	What you type, contrasted with on-screen computer output	To turn the unit on, type on at the <code>ccpu></code> prompt. i.e., <code>ccpu>:on</code>
< AaBbCc123 >	Command-line placeholder or token to be replaced with a real name or value (do not type brackets)	To delete a file, type rm <code><filename></code> .
[AaBbCc123]	Optional argument (do not type brackets)	[help] dir [<code><filename></code>]
{< a > < b >}	Required argument (do not type brackets)	{ <code><na></code> <code><cmd></code> } grade { a, b, c, d, f }
<i>AaBbCc123</i>	Book titles, new words or terms, or words to be emphasized	- This manual is used in conjunction with the <i>SPARCengine CP1500 User's Manual</i>. - You <i>must</i> be grounded to avoid ESD damage to the equipment.
ABC	Acronyms	Locate the On / Off toggle switch on the CCN front panel.
	Caution	Failure to heed the instructions that follow the Caution symbol may result in damage to the equipment.

Table 1 **Typographic conventions**

Definitions of Terms

<i>scsiUp</i>	Refers to the larger card installed in the front of the system. scsiUp also refers to both the front and transition cards as a unit.
<i>Transition Card</i>	Refers to the smaller card installed at the back of the system.

System Block Diagram

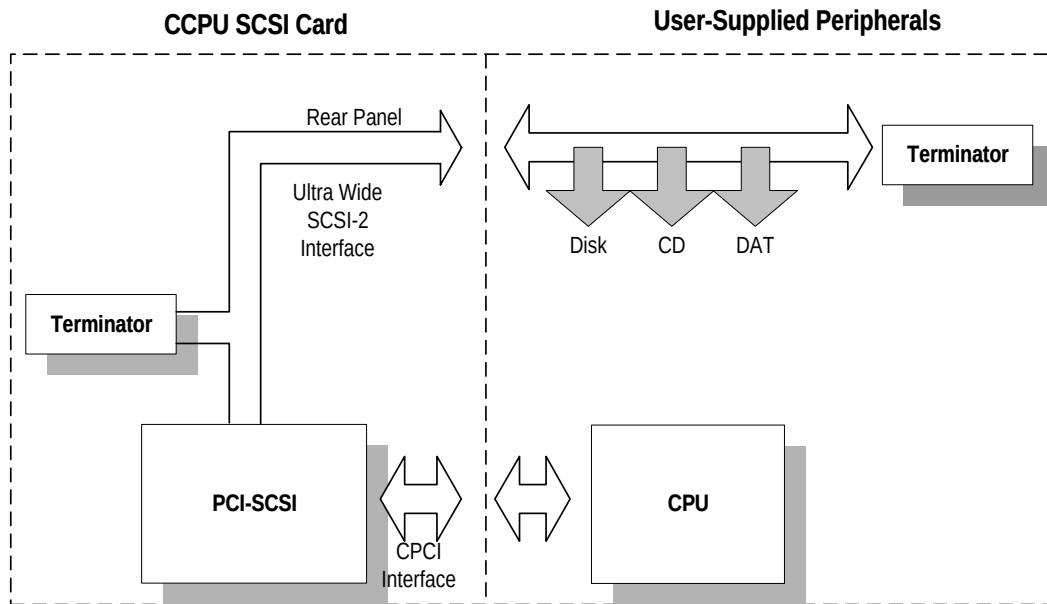


Figure 1 System block diagram

Photo



Figure 2 scsiUp

2 Unpacking, Installing, and Starting Up

Electrostatic Discharge (ESD)



Caution – scsiUp contains electronic components that are extremely sensitive to static electricity. Ordinary amounts of static from clothing and the surrounding environment may destroy components.

What to do

- Use an antistatic mat.
- Use an antistatic wrist or foot strap.

Storage

- If the system is to be stored before unpacking, see [Table 7](#) for environmental storage specifications.

Unpack scsiUp



Caution – Always maintain an ESD-safe environment when handling scsiUp. It contains many components that can be destroyed by ESD.

- Inspect the shipping container for any in-transit damage and report it to the shipping agent if necessary.
- Carefully unpack scsiUp from its shipping container.

Power Down Your System

1. Ensure that your system's OS has been shut down. In Solaris, do this using the **halt** command.
2. Power down the system.

Install scsiUp



Caution – You cannot install an I/O card in the slot designated for a CPU card, or vice-versa.

1. Slide the card into its slot in the system chassis. As the card's ejector latches engage the chassis, apply forward pressure while pushing the ejector latch handles toward each other. This procedure applies to both the front and transition cards. See [Figure 3](#) for an illustration of card installation and removal.



Caution – If you are installing the transition card in a system with an H.110 backplane or other backplane without J4 on the rear, then you must carefully align the transition card visually. This is *critical*; bent pins *will* result if you do not visually align the transition card in an H.110 backplane.

Note: J4 is used for alignment purposes only. It is not required for electrical connections.

2. When properly installed, the connectors of each card will be fully engaged with the chassis' midplane. The scsiUp's front panel will sit flush with the front panels of the other cards.
3. Install and tighten the captive screws supplied with scsiUp on each ejector latch handle to secure each card to the system chassis.

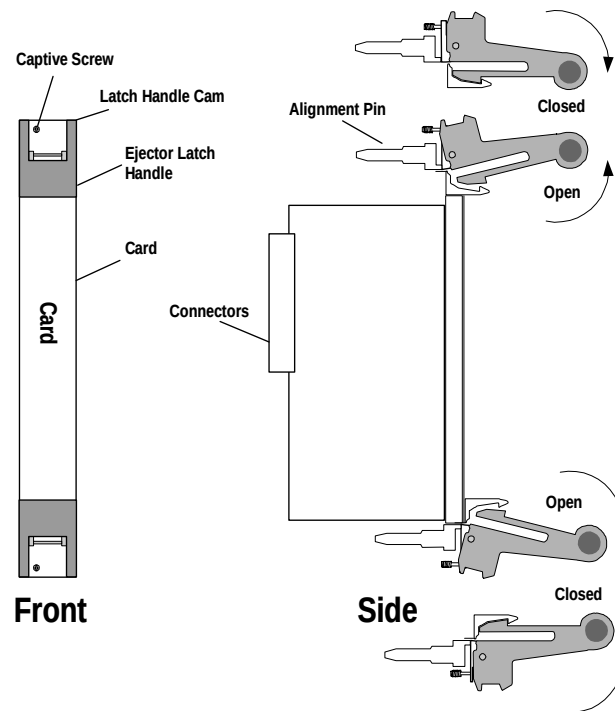


Figure 3 Card installation and removal

Connect the External SCSI Devices

If you need to connect external SCSI devices to the system, follow the procedure defined below:

1. Ensure that the system's OS has been shut down. In Solaris, this is done using the **halt** command.
2. Locate the SCSI OUT connector on the last device in the SCSI chain.

3. Remove the SCSI terminator from the SCSI OUT connector.
4. Connect the external SCSI device to the SCSI OUT connector.
5. Connect the SCSI terminator to the SCSI OUT connector on the last device in the external SCSI device chain. Note that a SCSI chain can consist of no more than 15 devices and that each device must have a unique SCSI ID.

Power On Your System

1. Power up and **boot -r** (from OpenBoot) *or* **drvconfig ; disks ; tapes** (as root from Solaris).
2. SCSI devices will appear as:

`/dev/dsk/c<c>t<t>d<d>s<s>`

and

`/dev/rdsk/c<c>t<t>d<d>s<s>`

Where:

c is the controller number

t is the SCSI target

d is the LUN (almost always 0)

s is the disk slice

For example, the first disk on the first SCSI I/O card in the system should show up as:

`/dev/dsk/clt0d0s[0-7]`

Note: scsiUp does not require a driver. It uses the device driver built into Solaris.

SCSI IDs

The following are typical SCSI IDs used with most systems:

DISK: SCSI ID 0, 1, 2, or 3

DAT: SCSI ID 4 or 5

CDROM: SCSI ID 6

scsiUp: SCSI ID 7

However, you are free to select any SCSI IDs you wish.

SCSI Termination

scsiUp has active wide terminators on board. A terminator must be used at the end of the SCSI bus (active terminators are strongly preferred for best operation).

Note: scsiUp supplies termination power. scsiUp will accept external termination power even if the system is powered down.

To Change the Initiator SCSI ID (optional)

The default SCSI ID for the card is 7 unless modified through OpenBoot or through the operating system.

Under OpenBoot, all SCSI controllers can be changed to the same ID.

At the OK prompt, use the following command:

```
setenv scsi-initiator-id <scsi-id>
```

SCSI ID Configuration

No two devices may have the same SCSI ID. By default, scsiUp uses SCSI ID 7. External devices are normally configured through jumpers. Please refer to the respective external device manual for the particulars of its jumper settings.

3 Troubleshooting

Troubleshooting Scenarios

In the event that scsiUp should fail in any way, use the following procedures to troubleshoot.

Note: The transition card contains only passive components and therefore is extremely unlikely to be the cause of failure.

Before you begin

1. Halt the operating system.
2. From the ok prompt run the **probe-scsi-all** command:
 - Use **probe-scsi-all -f** if you just halted the operating system.
 - If you interrupted the boot sequence or executed a reset with **auto-boot? false**, then use **probe-scsi-all**.

Outputs from probe-scsi-all command for system shown in Figure 4		
❶	Typical SCSI Card Controller	/pci@1f,0/pci@1/pci@1/scsi@d
❷	Typical Secondary Chain Disk Devices	Target 0 Unit 0 Disk IBM DNES-309170Y SA30
		Target 1 Unit 0 Disk IBM DNES-309170Y SA30
❸	Typical Secondary Chain CD Device	Target 6 Unit 0 Removable Read Only device PLEXTOR CD-R PX-W4220T1.01
❹	CP1500 Onboard Controller	/pci@1f,0/pci@1,1/scsi@2
❺	Typical Primary Chain Boot Disk Entry	Target 0 Unit 0 Disk IBM DNES-309170Y SA30

Table 2 Outputs from probe-scsi-all command

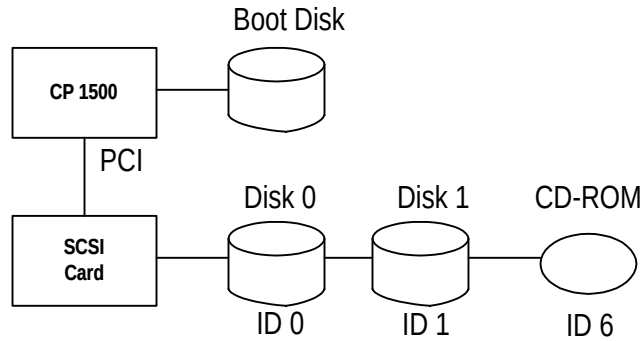


Figure 4 Example system

If...	Then...
❶ is not seen:	1. Power off. 2. Reseat controller. 3. Repeat probe-scsi-all.
❶ is seen (but no device entries similar to ❷ or ❸ are seen):	1. Verify termination. 2. Verify devices are at correct SCSI IDs. 3. Verify that all cables are seated. 4. Verify that all devices have power.
This continues to fail:	Swap the scsiUp's front card with one that you know works.
If all else is fine:	Reseat transition card and front card and try again.

Table 3 Troubleshooting scenarios

Finally, if all looks fine, restart Solaris with **boot -r** and recheck devices in `/dev/dsk` or `/dev/rmt`

Specific Error Message

Error Message	What it Means	What to Do
invalid disk label	A disk is present that has not been initialized by Solaris.	1. Under Solaris, run format. 2. Select appropriate device and use label.

Table 4 Error message

Removing scsiUp

To remove scsiUp's front card:

1. Halt the operating system.
2. Remove power (if desired).
3. Remove scsiUp's front card.
4. If you are not replacing the card with a new one, use **boot -r** on your next boot to ensure the new configuration is recognized.

Removing the Transition Card

To remove the transition card:

1. Halt the operating system.
2. Remove power (if desired).
3. Disconnect SCSI devices and remove the transition card.
4. If you are not replacing the card with a new one, use **boot -r** on your next boot to ensure the new configuration is recognized.

Contact Technical Support

If you continue to experience problems with scsiUp, contact the Technical Support team at Continuous Computing. See [Section 5](#) for contact information.

4 Connector Usage, Pinout, and Specifications

Connector Usage

Connector Usage	
J1	PCI
J2	Not used/Not installed
J3	SCSI signals
J4	Mechanical alignment only
J5	Not used/Not installed

Table 5 **Connector usage**

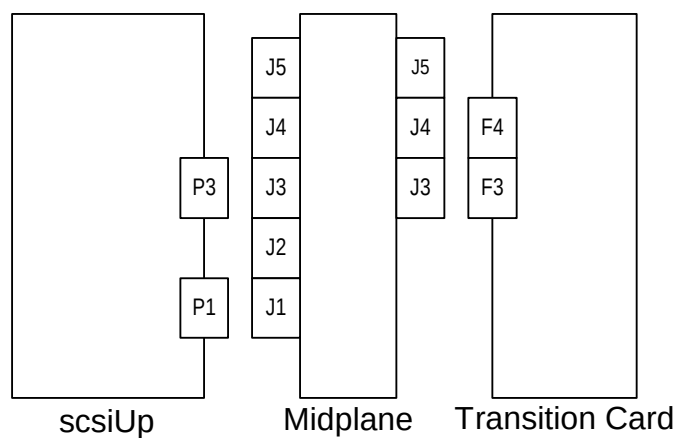
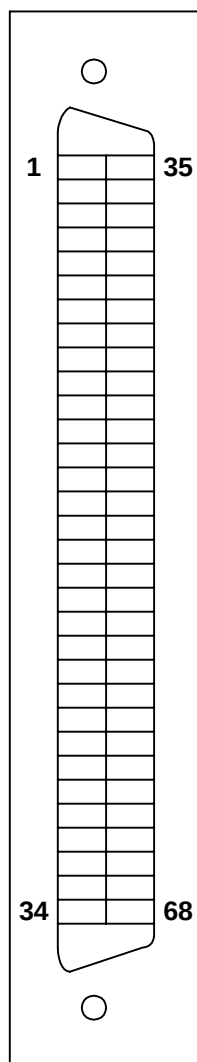


Figure 5 **Connectors**

Pinout



Pin	Signal	Pin	Signal
1	GND	35	DB12
2	GND	36	DB13
3	GND	37	DB14
4	GND	38	DB15
5	GND	39	DBP1
6	GND	40	DB0
7	GND	41	DB1
8	GND	42	DB2
9	GND	43	DB3
10	GND	44	DB4
11	GND	45	DB5
12	GND	46	DB6
13	GND	47	DB7
14	GND	48	DBP
15	GND	49	GND
16	GND	50	GND
17	Termination Power	51	Termination Power
18	Termination Power	52	Termination Power
19	No Connect	53	No Connect
20	GND	54	GND
21	GND	55	ATN
22	GND	56	GND
23	GND	57	BSY
24	GND	58	ACK
25	GND	59	RST
26	GND	60	MSG
27	GND	61	SEL
28	GND	62	C/D
29	GND	63	REQ
30	GND	64	I/O
31	GND	65	DB8
32	GND	66	DB9
33	GND	67	DB10
34	GND	68	DB11

Table 6 **SCSI connector pinout**

Specifications

Functional	One Single-Ended Ultra-Wide SCSI-2 Bus Capable of 40 MB/s
Software	Compatible with Solaris 2.5.1, Solaris 2.6, Solaris 7, and Solaris 8 Compatible with OpenBoot to support booting or CD-ROM installations
Connectors	Single 68 pin SCSI-2 connector on transition card
Electrical	7.5W at 5V power consumption
Mechanical	6U Single Slot CompactPCI Card (233.35mm x 160mm) 6U Single Slot CompactPCI Transition Card (233.35mm x 80mm)
Operating Mechanical and Environmental	
Mechanical	Eurocard 6U, 1slot 160mm x 233.35 mm x 20 mm
Temperature Humidity Altitude	-5°C to 55°C (Operating) 5% to 90% relative humidity, noncondensing 3000m
Storage/Transit Environmental	
Temperature Humidity Altitude	-40°C to 70°C 10% to 95% relative humidity, noncondensing 10000m
Safety Compliance	
UL/cUL1950 3rd Edition Recognized Component	
Electromagnetic Compatibility (EMC)	
FCC Class A	
Telco Compliance	
Designed for Telcordia NEBS GR-63-CORE Level 3 Designed for Telcordia NEBS GR-1089-CORE Level 3	
Marks	
UL, cUL, CE	

Table 7 Specifications

5 Technical Support

Before contacting the Technical Support team at Continuous Computing, be sure you have read [Section 3, “Troubleshooting,”](#) of this guide.

If you continue to experience problems with scsiUp, please contact the Technical Support team at Continuous Computing by any of the methods listed below.

Note: Please be sure to include the serial numbers for each affected module, system and/or part. In addition, we will need to know what version of Solaris (or other operating system) you are running, as well as the patch level, and any other significant software packages that are installed.

Contacting Technical Support

To contact the Technical Support team at Continuous Computing, do one of the following:

- Email us at support@ccpu.com
- Visit our support web site at <http://support.ccpu.com>
(This site features our automatic technical support system. Create a new user profile. Then submit a new ticket at the “Welcome to SupportWizard” page. This process ensures that our team delivers a timely solution to any technical problem you have.)
- Call us at (858) 882-8911, 9:00 a.m. – 5:00 p.m. (PST)

Note: If you have a Gold or Platinum service contract, follow the contact instructions provided with your contract.